

COMMENTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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USACE

Colonel James G. May, District Engineer
Attn: Richard Legere
Regulatory Division
U.S. Corps of Engineers
Gainesville Regulatory Office
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SUBJ: Draft Supplemental Environmental Impact Statement (DSEIS) on Section 404, Clean water Act, Permitting Continued Mining Operations of PSC Phosphate at Hamilton County Minc, Hamilton County, Florida. November 2001
CEQ No. 020209

Dear Colonel May:

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the referenced SDEIS. The Jackson District of the U.S. Army Corps of Engineers (Corps) has received a request for modification to Permit No. 19840452 for the PSC Phosphate - White Springs Mine (PSC Phosphate) located in Hamilton County, Florida. PSC Phosphate has been engaged in phosphate mining a 100,580-acre project area under permits from the Corps, Florida Department of Environmental Protection (FDEP), and Hamilton County. The current federal permit will expire in 2002. The proposed new mining areas include jurisdictional wetlands. Permit modifications would be issued under Section 404 of the Clean Water Act under a joint permitting process with the FDEP. The preferred alternative, as described in the SDEIS, is to permit for mining a tract having federal jurisdictional wetlands and isolated wetlands. It is estimated that the productive life of the mine will be approximately 37 years.

Wetland Issues - The status of federal jurisdictional wetlands and isolated wetlands at the White Springs Mine are currently under review by Region 4's Wetlands Regulatory Section.

Threatened and Endangered Species - Areas to be mined include uplands which may harbor the federally-protected eastern indigo snake, the red cockaded woodpecker, and the wood stork. The eastern indigo snake frequently inhabits the burrows of the gopher tortoise, a species protected by the state of Florida. To prevent being crushed in their burrows by mining equipment, indigo snakes and gopher tortoises should be removed to adjacent, undisturbed habitats. EPA requests that the Corps and PSC consult with U.S. Fish and Wildlife Service (FWS) prior to disturbing the upland areas, and that FWS relocation protocols for protected species be conducted prior to mining. Tortoise relocations have been successfully accomplished at other projects in the Southeast.

Cumulative Impacts - The DSEIS did not adequately address cumulative impacts on large-scale disturbance of the subsurface aquifer zone, reduced permeability of soils altered by mining and restoration, and the potential for impacts on the Suwannee River. The preponderance of cumulative impact discussions focused upon the economic benefits attendant to the project. The DSEIS section designated as "cumulative impacts" (Page 48) comprised three paragraphs on environmental issues whereas "cumulative impacts" on economic benefits comprised five pages and five tables (Pgs 36 - 41), elements of which were reiterated repeatedly throughout the document.

The Council on Environmental Quality (CEQ, 1997) regulations require consideration of incremental environmental impacts of an action when added to other past, present and reasonably foreseeable future actions (40 CFR 1508.7). CEQ has published guidelines on considering cumulative impacts under the National Environmental Policy Act. While this guidance does address economic impacts, the primary focus is on cumulative impacts on the natural and human environment. EPA requests that the final SEIS provide a more balanced discussion of environmental and economics issues attendant with the preferred alternative.

Suggested Improvements - EPA has identified areas in the final SEIS that might be strengthened, specifically on the long-term impacts from phosphate mining on rivers, streams, surficial aquifers, and subsurface water storage. EPA's authority on groundwater issues stems from the Safe Drinking Water Act Sections 1445 and 1450 authorizing protection of aquifers and underground sources of drinking water.

The phosphate mining process disrupts established surface and subsurface water movement. To gain access to the ores, the overburden is removed, the ore removed, and the voids filled with mixtures of sand-clay tailings, and phosphogypsum from the beneficiation process. Fine sands and clays dislodged during the mining process or introduced from clay settling areas and restoration activities have been reported to clog interstitial spaces of the soils and reduce conductivity of the underlying aquifers that feed tributary creeks.

Reduced aquifer conductivity has been documented in phosphate mining sites located southwest of Hamilton County in the Peace River drainage basin (Desoto, Manatee, Sarasota and Hardee Counties) in Florida. Here, mining and reclamation processes have been reported to alter natural drainage patterns and lower ground-water levels (U.S. Geological Survey, 1998). Soils altered by reclamation activities were reported to be less pervious because of increased clay content in the surface horizons. A progressive long-term decline in stream flows occurring along the Upper Peace River since 1931 has been reported due to the lowering of the potentiometric surface of the Upper Floridan aquifer that is attributable to agriculture and phosphate mining. Because Hamilton County and the Peace River drainage basin share similar geological characteristics (both regions have recoverable depositions of marine-origin phosphate ores overlain with sandy soils), EPA is concerned that a similar pattern of reduced water flow may occur in the Suwannee basin. The Suwannee River system provides important recreational and commercial natural resources including timbering, hunting, fishing, canoeing, hiking and

drinking water. The Suwannee River is a National Historic Site, an Outstanding Florida Water, and is being considered for designation as a critical habitat for the short-nosed sturgeon.

PSC clearly is cognizant of groundwater issues. The surficial aquifer monitoring program, described on pages 45-47 in the DSEIS, is a strong element in the site environmental management plan. Surficial aquifer level data are reported quarterly to the Corps. PSC has identified additional piezometer sites to be situated adjacent to the mining area and in sites remote from mining activity to serve as controls. In addition, PSC has proposed monitoring the ground water levels of adjacent wetland systems that are to be protected from the dewatering process. (Dewatering is a process employing a series of in-ground well points connected to a vacuum manifold system that temporarily lowers the water table in mining areas to prevent mine sidewall collapse and enhance safety.)

While the environmental risks from short-term dewatering are being monitored by PSC, EPA believes that long-term groundwater trends are a far more critical issue. A longer range perspective is needed to determine if mining and reclamation is/is not disrupting subsurface hydraulic connections between the Suwannee River and its tributaries (Upper Camp Branch, Lower Camp Branch, Swift Creek). Empirical evidence of stream flow declines observed in the Peace River raises concerns that the PSC's proposed mine expansions, over time, could reduce the Suwannee River surface flows by interrupting subsurface ground-water input to the Suwannee.


EPA requests that PSC commit to taking long-term groundwater depth data for pre- and post-mining surficial aquifers in reclaimed wetlands and clay-settling areas. Post-mining aquifer data should be taken over the estimated 37-year life of the mining project and provided to the USGS and the Suwannee River Water Management District. Because some piezometers have already been installed, and additional sites have been proposed for this latest mining expansion, leaving the piezometer systems in situ after mining (where feasible) would cost very little and would provide valuable long-term data on ground-water levels.

Changes in ground water storage - Surficial aquifers are typically recharged during the wet seasons and provide water resources for vegetation and animal life during the dry season. Their existence depends upon continuing soil permeability maintaining interstices between soil particles which allow for both storage (and movement) of water. While the amount of surficial aquifer storage will vary with soil type and porosity, storage capacity may be up to millions of gallons per acre. What happens to this ground-water storage capacity when the natural substrate is replaced with clay-settling ponds? A similar question arises when considering reclaimed and re-contoured areas following restoration and filling with sand tailings mixed with clay, a common reclamation/disposal technique. EPA requests that evaluation of impacts on the subsurface aquifer storage of mined areas, reclaimed areas, and clay-settling ponds be considered in the final SEIS.

Thank you for the opportunity to review this DSEIS. EPA rates this document EC-2, that is, the document does not contain sufficient information for EPA to fully assess environmental

impacts that should be avoided in order to fully protect the environment. Additional information that would improve the final SEIS include timely consultations with FWS on protected species, a long-term ground water monitoring program to document ground water conductivity, cumulative impacts on Suwannee River flows, and discussion of phosphate mining on subsurface aquifer storage. If you have questions on our comments, please call John Hamilton at (404) 562-9617.

Sincerely,



Heinz Mueller
Chief
Office of Environmental Assessment

Literature Cited:

U.S. Geological Survey, 1998. Lewelling, B.R., A.B. Tihansky, and J.L. Kindinger. "US Geological Survey. Water-Resources Investigations Report 97-4211: Assessment of the Hydrologic Connection between Ground Water and the Peace River, West-Central Florida." Prepared in cooperation with the Southwest Florida Water Management District.

CEQ, 1997. "Considering Cumulative Effects Under the National Environmental Policy Act" Prepared by: Council on Environmental Quality, Executive Office of the President

July 15, 2002

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Re: **White Springs Agricultural Chemicals, Inc. (d/b/a PCS Phosphate - White Springs)**
Draft Supplemental Environmental Impact Statement (DSEIS)
Permit Application No. 198404652 (IP-RHL)

Dear Colonel James G. May:

Last month I requested a copy of the DSEIS referenced above. When it arrived, it included no information regarding the closing date for comments. When I contacted the Corps' (COE) Gainesville Regulatory Office to inquire regarding the closing date for comments on the DSEIS and the permit application, the response I received was that the deadline for comments was July 16, 2002. A subsequent e-mail was forwarded to me, that I just received, indicating that closing date was not correct for comments on the DSEIS, but that today was the deadline for comments.

I have been requested to provide comments on the referenced DSEIS on behalf of Floridians for Environmental Accountability (FEAR) and Wetlands Alert, Inc. (Wetlands Alert). The DSEIS fails to address numerous critical environmental issues and economic issues. The DSEIS also contains numerous statements which have no scientific or factual basis. Conversely, there is scientific evidence refuting many of the statements that are inferred as fact in the DSEIS. Therefore, in view of the extensive omissions and factual misstatements in the DSEIS referenced above, **on behalf of FEAR, Wetlands Alert and myself, I am hereby requesting a 30 day extension of the comment period for the DSEIS so that more comprehensive comments can be submitted regarding the gross inadequacies of that document.** Examples of only some of the many types of inadequacies and scientifically-unfounded statements in the DSEIS are provided below.

EXAMPLES

1. The DSEIS addresses only the short-term economic benefits of employment associated with the mine, but fails to address or attempt to quantify the gross, long-term economic costs of irreversible damage to both the surficial aquifer and regional Floridan aquifer, and all of the associated natural resources that are interlinked with and dependent upon the natural hydroperiod of those aquifers (e.g., forest resources, downstream fisheries - both finfish and shellfish).
2. The "success" criteria (e.g., for restoration) that apparently is being used by the COE is without scientific basis. High seed production apparently is being used by the COE to indicate successful "restoration". In fact, high seed production in many of Florida's forested wetland species is indicative of severe stress conditions.

3. There is no scientific basis for claim the forested wetlands can be "restored" or "replaced" once they have been mined because even if the trees survive (and meet the arbitrary conditions set forth in the COE permit), the wetland functions, faunal populations, and soils are not re-established.

4. This is a 100,000 acre site that has been in some state of mining for years, yet the DSEIS fails to address the extensive and regional adverse cumulative impacts (e.g., environmental, socioeconomic) of the proposed expansion of the mining activities. A comprehensive Cumulative Impacts Analysis, pursuant to NEPA is required to address all of the myriad adverse impacts of this proposed project that the DSEIS failed to address.

5. The DSEIS infers that the COE jurisdiction includes only approximately 2,000 acres of wetlands. Although it cannot be determined by the DSEIS or the public notice for the application, it appears that the mine expansion proposes to destroy approximately 7,000 acres of additional wetlands. All of those wetlands are within your agency's jurisdiction.

6. The DSEIS addresses only the impacts of the surface footprint of the proposed mine expansion, and ignores all impacts associated with the subsurface impacts. For example, the current mining activities have resulted in the permanent, irreversible alteration of the natural hydroperiod of both the wetlands and the wetlands for miles beyond the actual mine site. This hydroperiod alteration is resulting in the death of both wetland and upland trees on property beyond the boundaries of the site, including on private and public property not associated with the mine.

7. The so-called "lakes" that will be dredged and remain as part of the proposed mine expansion will result in additional, more extensive hydroperiod alteration, leading to the catastrophic destruction of all wildlife habitat associated with that upper portion of the Suwannee River, which has been designated as an Outstanding Florida Water (OFW).

8. Wood storks, a federally-endangered species relies on precisely the types of wetlands which have and will continue to experience irreversible hydroperiod alteration as adverse direct, indirect, and cumulative impacts of the existing and proposed mine. The DSEIS fails to identify the adverse impacts on these wetlands which are essential for both the feeding and successful reproduction of this federally-endangered species. In fact, the DSEIS actually infers that the observation of wood storks at clay slime pits on the mining site can be interpreted to mean that clay slime pits are 'habitats' that can maintain reproductive populations of this species.

Please notify me by electronic mail regarding confirmation of the extended comment period.
Thank you in advance.

Sincerely,

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July 16, 2002

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Re: **White Springs Agricultural Chemicals, Inc. (d/b/a PCS Phosphate - White Springs)**
Formal Comments on the Proposed Modification of Permit Application No. 198404652 (IP-RHL)
and the Draft Supplemental Environmental Impact Statement (DSEIS)

Dear Colonel James G. May:

Yesterday I forwarded a letter to you (electronically), on behalf of **Floridians for Environmental Accountability (FEAR)**, **Wetlands Alert, Inc. (Wetlands Alert)**, and myself, requesting at least a 30 day extension of the comment period for the referenced DSEIS. This request was based on the extensive omissions and factually-unfounded statements in the DSEIS. Today, I am providing formal comments on both the proposed permit modification and DSEIS referenced above, which are linked inextricably.

The comments that are provided below and in the referenced Exhibits, are not meant to be exhaustive, but should be sufficient to illustrate the gross inadequacies of both, with respect to the Federal laws and regulations that govern these proposed actions. These comments also are provided on behalf of FEAR, Wetlands Alert, and myself. The Exhibits that could not be forwarded electronically have been forwarded to you at the address provided above (as indicated in the Public Notice), via Express Mail (EU531814984US). Please direct any responses to this letter to Dr. Kathy Cantwell, FEAR's Director of the Suwannee River Regional Chapter; Barbara Herrin, President of Wetlands Alert, Inc.; and me, at the addresses provided below. By copy of this letter, I also am requesting that actual notice of any proposed action that the U. S. Army Corps intends to take regarding the proposed permit modification and DSEIS referenced above, also be forwarded to each of us.

PERSONAL BACKGROUND AND EXPERIENCE, EDUCATION AND RESEARCH

1. Before I provide comments on the proposed project modification and DSEIS (referenced above), I am including the following brief synopsis of my scholastic and professional background, as support for the validity of my comments. I received a BS and MS from Florida State University. The topic of my masters research was the influence of hydrologic conditions on wetland and aquatic plant community distribution. Immediately upon completion of my masters degree I was hired by the Florida Department of Environmental Regulation (DER - now known as the Florida Department of Environmental Protection - DEP), where I worked for approximately 10 years on various aspects of wetland and aquatic ecosystems, including the identification of wetlands in areas of dredge and fill violations.
2. During and subsequent to my employment with governmental regulatory agencies in Florida, I

served as an expert witness for countless enforcement and permitting cases/potential cases throughout the entire State of Florida, in addition to overseeing numerous large "restoration" projects. I then shifted from government regulatory work to return to the academic realm and obtain my doctoral degree. The foundation of my groundwater flow/hydrogeology/geochemistry background was graduate-level courses at the University of South Florida (Departments of Engineering and Geology). That university has one of the most prominent programs in karst hydrology in the nation (possibly the world). I then transferred to the University of Georgia to complete additional courses focusing on forest hydrology, forest pathology and ecology. That extensive multidisciplinary background was essential for both my doctoral and post-doctoral research problems, which included identifying anthropogenic (man-induced) groundwater alterations as a causal agent in the premature decline and death of trees, wetlands, and other significant and permanent adverse environmental impacts.

3. My research for the past 10 years has involved surfacewater/groundwater interactions and the ecological impacts of anthropogenic groundwater perturbations in the southeastern Coastal Plain. I have published more than 30 peer-reviewed papers (including contributing a book chapter regarding surfacewater/groundwater interactions). I also have received several awards for my hydrologic contributions to communities, and have been invited to present papers at several International Hydrologic Conferences.

4. I was nominated as a Technical Advisory Member in the field of hydrology for the proposed mining of the Trail Ridge relict sand dunes in the vicinity of the Okefenokee National Wildlife Refuge, and was selected to serve as a Peer Reviewer for the related proposed mining issues. A "no mining" scenario was imposed for Trail Ridge, however, in part because of adverse impacts that would occur to Waters/wetlands of the United States in the Okefenokee Swamp if one of the primary recharge areas (Trail Ridge) was dredged. Note that it was recognized in that case that adverse impacts would occur beyond the boundaries of the property to be dredged. My Curriculum Vitae is provided as EXHIBIT 1 (forwarded as a hard copy), for more details regarding my background and related peer-reviewed publications.

JOINT COMMENTS ON MODIFICATION TO PERMIT #198404652 (IP-RHL) AND DSEIS

4. All of the Exhibits for this comment letter are listed in EXHIBIT 2 (provided electronically and as a hard copy). EXHIBIT 2 also indicates which Exhibits were forwarded as hard copies and which are being forwarded electronically. The Public Notice for the permit modification referenced above, originally was dated May 17, 2002, and was for a 15-year permit to mine approximately 7,500 acres of wetlands. The Public Notice was republished on June 13, 2002, with the comment period extended to July 16, 2002, at the request of the U. S. Environmental Protection Agency, according to an electronic communication that I received from Richard H. Legere, with the COE's Gainesville Regulatory Office. In that Public Notice, the applicant (Potash Company of Saskatchewan (PCS Phosphate-White Springs))" proposed to mine an additional 1,858 acres of jurisdictional wetlands within a 19,077-acre application footprint over a 47 year period."

5. The Public Notice states that the referenced COE permit was issued on October 7, 1987. Prior to the issuance of that permit and the extensive mining of wetlands, including those associated with Beehaven Bay, I conducted inspections of the wetlands that were proposed to be mined, as an employee of the Florida Department of Environmental Regulation (FDER). That agency now is known as the Florida Department of Environmental Protection (FDEP). Those inspections confirmed that the extensive forested wetlands were connected to the Suwannee River ("jurisdictional") as a result of those inspections. The connection of those wetlands subsequently were challenged by Occidental Chemical and Petroleum Company (the original permittee) in two Administrative Hearings with FDER. The State of Florida prevailed in both Hearings, confirming that the wetlands that were proposed to be mined were both jurisdictional Waters of the State and jurisdictional Waters of the United States.

6. Both the original Public Notice dated May 17, 2002 and the DSEIS infer or specifically state that considerable areas of "isolated" wetlands occur on the site. There are no isolated wetlands on the approximately 100,580 acres project site. All of the wetlands that have been considered not to be "jurisdictional" (e.g., depressional pond-cypress wetlands) are, in fact, connected to Waters of the United States or are adjacent waters. Consequently the acreage of wetlands that would be mined (lost) as the direct result of the surface footprint of the proposed mine is considerably greater than indicated in the Public Notices and DSEIS.
7. Extensive additional acreage of Waters of the United States would be destroyed as adverse direct, indirect, and cumulative impacts (e.g., groundwater) associated with the subsurface (e.g., groundwater) footprint of the proposed modification. Refer to EXHIBITS 3 and 4 (all forwarded electronically) for more detailed comments regarding the extensive adverse impacts associated with these types of mining projects and the failure of the DSEIS to address these impacts. The points concerns addressed in EXHIBIT 3 remain unaddressed in the DSEIS. Note that the mines addressed in the four comment letters included in EXHIBIT 4 represent mines that are resulting in or will result in extensive irreversible loss of wetlands not accounted for in the permits authorizing those permits.
8. The DSEIS (p. viii and p. 17) indicates that Alternative A is a "no wetland mining" alternative, and states that alternative "would not require a permit from the ACOE". That statement is grossly misleading (without factual basis) in two aspects. First, it continues to presume that vast areas of wetlands on the project site are not within the COE's "jurisdiction", although those wetlands are Waters of the United States. Second, the wetlands on the site are so extensive that even if mining legitimately was confined only to uplands (and no wetlands were mined) the applicant still would have to get permits from the COE for road crossings and similar activities required to mine the uplands.
9. The DSEIS failed to consider any true "no mining" alternatives, such as the no-mining alternative that prevailed when mineral mining in the Okefenokee Swamp (Georgia) was considered.
10. Furthermore, page 49 of the DSEIS includes the statement, "There is no alternative, natural or synthetic, to substitute for phosphate." This statement implies that mining wetlands is the only means of obtaining phosphate. This is NOT the case. Alternative A (mining only uplands) confirms the obvious - that phosphate mining is NOT a water-dependent (wetland-dependent) activity. Therefore, practicable alternatives are presumed to be available (see the Section 404(b)(1) Guidelines).
11. EXHIBIT 5a provides numerous high-tech examples of recovering phosphate (as described by the European Chemical Industry Council) that does NOT result in the irreversible loss of natural resources (as is the case with the proposed mining). In fact, the techniques described in EXHIBIT 5a (e.g., recovering phosphate from animal manures) result in a true net improvement in water quality and environmental resources, unlike similar unsubstantiated claims made in the referenced Public Notice and DSEIS.
12. These "functional" Alternatives to mining wetlands are not just available to the progressive-thinking Europeans. In the "backwoods" of north Georgia, similar types of environmental sound and sustainable "functional" Alternatives to mining wetlands for phosphate are available. EXHIBIT 5b provides a brief description of the approaches currently being used as the result of research at the University of Georgia. In addition to obtaining the nutrient from animal waste, this project also is able to use human waste.
13. Clearly the DSEIS did not give a hard look at all of the reasonable and practicable alternatives - such as the two functional alternatives described above. It also did not consider "geographic" Alternatives, such as importing phosphate rock. For example, when the COE examined alternatives to PCS' proposed mine expansion in North Carolina, a determination was made that importing phosphate rock from Morocco was a viable alternative. That alternative would not involve the loss of Waters of the

United States.

14. The Agenda for The Florida Association for Water Quality Control 24th Annual Conference, June 13-16, 2001 (EXHIBIT 6), devoted an entire afternoon's session to the discussion of nutrient management in the Phosphate Industry. This alludes to the magnitude of the eutrophication problem linked, intimately with this primitive means of obtaining phosphate. One of the sessions is titled, "Do We Need an Area Wide Environmental Impact Statement (EIS) for Mining?" My response is NO. What is needed is a REGIONAL EIS for mining in Florida.

15. The six peer-reviewed publications provided in EXHIBIT 7a-f describe the widespread environmental/wildlife degradation that results from this eutrophication, with the first publication specifically dealing with the eutrophication of the Suwannee River, to which the wetlands proposed to be mined are connected. The wildlife that suffer significant adverse impacts from the eutrophication include the federally-listed Florida manatee. These publications illustrate another highly significant adverse impact of the phosphate mining that occurs, but was not addressed in the DSEIS. Specifically, the degradation and contamination of Waters of the United States at areas throughout the entire state and U. S., as indirect and cumulative impacts to fertilizer runoff. These factors should have been addressed in the DSEIS.

16. The Public Notice and DSEIS repeated promote the "jobs" associated with the existing and proposed mining in Hamilton County. Selling crack cocaine would provide more lucrative jobs at approximately the same level of legality. Since the Suwannee River Basin now has significant nutrient loading problems, a more sustainable approach to providing long-term jobs in that area would be to establish a phosphate-recovery facility/composting facility like the ones described in EXHIBIT 5. That "Alternative" would provide economic stimulus, while improving water quality and the environmental conditions, rather than degrading and destroying those natural resources.

17. EXHIBIT 8 provides a simplified synopsis of Florida's Hydroecology, describing the intimate connection between the karst aquifer system and surfacewater resources. EXHIBIT 8a-e are selected relevant peer-reviewed publications that provide the scientific backbone of the synopsis. This scientific documentation illustrates the magnitude of damage that has been and will continue - but was unaddressed - as the result of that mining.

18. EXHIBIT 9a-e provide additional graphic explanation (from various peer-reviewed publications) regarding how the "subsurface" impacts or "footprints" occur in conjunction with the mining.

19. EXHIBIT 10a-e include entire copies of various relevant peer-reviewed publications to explain these concepts more thoroughly. These publications illustrate the magnitude of the damage that the combination of massive groundwater withdrawals and the excavated pits have on the hydroperiods of the wetlands for miles beyond the boundaries of the project site.

20. The relevant Federal documents included in EXHIBIT 11 continue to describe the magnitude of the damage associated with mining in Florida and the Coastal Plain. The importance of maintaining wetlands like those on the site of the proposed modification is addressed in EXHIBIT 11d.

21. I have personal knowledge regarding this type of damage, since it was the focus of my doctoral research. The copies of the color photographs that I took at various sites in Florida are provided in EXHIBIT 12.

22. Cumulative impacts were mentioned on page 48 of the DSEIS, almost in passing. Less than a page was devoted to the discussion of cumulative impacts. Please refer to EXHIBITS 13 and 14. They describe in detail what constitutes "cumulative impacts". A comprehensive Cumulative Impacts Analysis, pursuant to NEPA standards is required for this project.

23. Finally, **EXHIBITS 15 and 16** list only some of the critical wildlife that are dependent on the thousands of areas of depressional wetlands that are proposed to be destroyed with this modification. As I indicated previously, the wood storks are federally-endangered species and the regeneration of their populations will suffer significant adverse impact if the proposed modification is authorized.

Please notify me by electronic mail if any of my comments or Exhibits were unclear regarding their relevancy to the proposed project. The Public Notice and the DSEIS strongly suggest that the authors have no scientific background for the reviews and analysis that were attempted, and the Public Notice clearly states that none of the information submitted was verified. **If the proposed modification is not denied, I am requesting that a series of Public Hearings be held throughout the State of Florida regarding the impacts that would occur from this project.** Thank you in advance.

Sincerely,

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Enclosures:

See **EXHIBIT 2** for complete list of enclosed exhibits

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EXHIBIT 2

LIST OF EXHIBITS FOR COMMENTS BY BACCHUS ON PROPOSED MODIFICATION TO PERMIT #198404652 (IP-RHL) AND DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (DSEIS)

PERSONAL BACKGROUND AND EXPERIENCE, EDUCATION AND RESEARCH:

1. Curriculum Vitae [9 pages]

JOINT COMMENTS ON MODIFICATION TO PERMIT #198404652 (IP-RHL) AND DSEIS:

2. List of Exhibits [3 pages]
3. Comment letter dated 11/2/00 from Blackner to Hendrix/COE re: proposed permit modification [8 pages, submitted electronically]
4. Comment letters from Bacchus to COE re: mining in Florida [submitted electronically]
 - a. 4/6/01 Green Swamp
 - b. 4/18/01 Everglades Pits
 - c. 8/8/01 Carabelle
 - d. 8/9/01 CFI
5. Reasonable and Practicable Functional Alternatives That are Readily Available, but Were Not Addressed in the DSEIS:
 - a. Scientific Committee on Phosphates Scope Newsletter Special Edition No. 41: Phosphate Recovery - Where do we stand today? In preparation to the 2nd International Conference on Phosphorus Recovery for Recycling from sewage and animal wastes, Noordwijkerhout (near Amsterdam) Holland, 12-14th March 2001. European Chemical Industry Council.
 - b. Grattan, M. July/August 2002. Researchers at UGA's Bioconversion Center solve waste problems through compost. Georgia and Southeast Environmental News. [3 pages]
6. Agenda for The Florida Association for Water Quality Control 24th Annual Conference, June 13-16, 2001. [3 pages]
7. Examples of peer-reviewed publications pertaining to water quality and adverse impacts of eutrophication to migratory birds, wading birds, and other wildlife in Florida:
 - a. Bledsoe, E. L. and E. J. Philips. 2000. Relationships between phytoplankton standing crop and physical, chemical, and biological gradients in the Suwannee River and Plume Region, U.S.A. *Estuaries* 23(4):458-473.
 - b. Lapointe, B. E., W. R. Matzie, and M. W. Clark. 1993. Phosphorus inputs and eutrophication on the Florida Reef Tract. pp. 106-112 in: R. Ginsburg (ed.) *Proceedings of the Colloquium on Global Aspects of Coral Reefs: Health, Hazards, and History*. University of Miami.
 - c. Bossart, G. D., D. G. Baden, R. Y. Ewing, B. Roberts, and S. D. Wright. 1998. Brevetoxicosis in manatees (*Trichechus manatus latirostris*) from the 1996 epizootic: gross, histologic, and immunohistochemical features. *Toxicologic Pathology* 26(2):276-282.
 - d. Frederick, P. C., S. M. McGehee, and M. G. Spalding. 1996. Prevalence of *Eustrongylidosis ignotus* in Mosquito fish (*Gambusia holbrooki*) in Florida: Historical and Regional Comparisons. *Journal of Wildlife Diseases* 32(3):552-555.
 - e. Spalding, M. G. 1990. Antemortem Diagnosis of *Eustrongylidosis* in Wading Birds (Ciconiiformes). *Colonial Waterbirds* 13(1):75-77.
 - f. Spalding, M. G., G. T. Bancroft, and D. J. Forrester. 1993. The Epizootiology of *Eustrongylidosis* in Wading Birds (Ciconiiformes) in Florida. *Journal of Wildlife Diseases* 29(2):237-249.

8. "Synopsis of Florida's Hydroecology: The Intimate Connection Between Surface Waters and Ground Waters"
 - a. Bacchus, S. T. 2000b. **Uncalculated impacts of unsustainable aquifer yield including evidence of subsurface interbasin flow.** *Journal of American Water Resources Association* 36(3):457-481.
 - b. Illustrated Typical Cross-Section of the Floridan Aquifer System
 - c. Bacchus, S. T. 2000a. **Predicting nearshore environmental impacts from onshore anthropogenic perturbations of ground water in the southeastern Coastal Plain, USA.** pp. 609-614 *in: Interactive Hydrology: Proceedings of the 3rd International Hydrology and Water Resources Symposium of the Institution of Engineers, Australia, 20-23 November 2000 Perth, Western Australia.*
 - d. Illustration of Aquifer Impacts from Dredged Pits: Intact Aquifer Cube v Dredged Cube
 - e. **Ecological Risk Ranking Scores for 33 Major Environmental Stressors by the USEPA Scientific Advisory Board (Figure 26.8 in: Bacchus, S. T. 2002. The 'Ostrich' Component of The Multiple Stressor Model: Undermining Florida)**
9. Graphic Excerpts from Peer-Reviewed Publications:
 - a. Cross-sections of depressional wetlands in Florida (Watson et al. 1990, Fig. 3)
 - b. Vertical hydraulic conductivity in karst depressions (Williams 1985, Fig. 5.16C)
 - c. Vertical fracture through "confining" layers of the Floridan aquifer system (Spechler and Phelps 1997, Fig. 3)
 - d. Fractures and faults in Florida's karst aquifer extending approximately 35 miles (Popenoe et al. 1984)
 - e. Depressional (pond-cypress) wetlands and relict sinkhole lakes aligned along fractures (Brook and Sun 1982, Figs. 10 and 18)
10. Examples of peer-reviewed publications pertaining to altered hydroperiods and adverse impacts to natural resources:
 - a. Curtis, T. G. 1989. **Estimating Unsteady Water Table Behavior Using Boundary Integral Approximations.** pp. 298-310 *In: J. E. Moore, A. A. Zaporozec, S. C. Csallany, and T. C. Varney (eds.). Recent Advances in Ground-water Hydrology. American Institute of Hydrology.*
 - b. Patten, T. H. and J.-G. Klein, 1989. Sinkhole formation and its effect on Peace River hydrology. *In: B. F. Beck (Editor) Proceedings of the Third Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, St. Petersburg Beach, Florida, 2-4 October 1989. A. A. Balkema Publishers, Old Post Road, Brookfield, Vermont. pp. 25-31.*
 - c. Lewelling, B. R., A. B. Tihansky, and J. L. Kindinger. 1998. **Assessment of the Hydraulic Connection Between Ground Water and the Peace River, West-Central Florida.** USGS Water-Resources Investigations Report 97-4211. 96 pp.
 - d. Bacchus, S. T., 1997. Premature decline and death of trees associated with a man-made lake and groundwater withdrawals in Albany, Georgia. *In: K. J. Hatcher (Editor) Proceedings of the 1997 Georgia Water Resources Conference, held March 20-22, 1997, at The University of Georgia, Athens, Georgia. pp. 280-286.*
 - e. Bacchus, S. T., T. Hamazaki, K. O. Britton and B. L. Haines. 2000. Soluble sugar composition of pond-cypress: A potential hydroecological indicator of groundwater perturbations. *Journal of American Water Resources Association* 36(1):1-11.
11. Relevant Federal Documents
 - a. 4/6/95 EPA Memo from Bacchus to Wylie
 - b. 3/1/98 EPA Memo from Bacchus to Wylie
 - c. 3/00 Final Programmatic EIS, Rock Mining - Freshwater Lakebelt Plan, Miami-Dade County, Florida [1 page excerpt]
 - d. 3/22/02 Riparian Areas: Functions and Strategies for Management (NRC report excerpts)

12. Photographs taken by Bacchus and supplemental background information:
 - a. 3 symptoms of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - b. 2 photographs of another symptom of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - c. 2 additional symptoms of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - d. 2 photographs of an additional symptom of premature decline, and 1 photograph of newly-formed sinkholes, all due to subsurface alteration of surficial aquifer hydroperiod in Florida [1 sheet]
 - e. symptoms of premature decline from subsurface alteration of wetlands hydroperiod at Little Gator Creek [3 sheets]
 - f. symptoms of premature decline and subsurface alteration of wetlands hydroperiod from mineral mining at Starke [4 sheets]
 - g. symptoms of altered physical and chemical conditions of "stream" water and habitat due to due to phosphate mining at Dog Leg Branch [5 sheets]
 - h. faxes from the Florida Institute of Phosphate Research to Bacchus dated 7/20/98 and 7/21/98 with supplemental background information [6 pages]
 - i. symptom of premature decline due to subsurface alteration of surficial aquifer hydroperiod in Live Oak [1 sheet]
 - j. symptoms of premature decline from subsurface alteration of wetlands hydroperiod at White Springs [3 sheets]
 - k. canopy of normal cypress tree lacking any symptoms of premature decline on Suwannee River [1 sheet]
 - l. nonaesthetic mine-scapes permanently and irreversibly altering the rural watersheds and natural habitats throughout Florida [2 sheets]

CUMULATIVE EFFECTS:

13. "What are Cumulative Impacts? Synopsis of the U. S. Council on Environmental Quality: 1997 Cumulative Effects Report"
14. "Considering Cumulative Effects Under The National Environmental Policy Act"
15. Season and Depth Requirements of Surface Water for Successful Breeding of Amphibians Associated with Depressional Wetlands in Florida [1 page Table]
16. Fish and Wildlife Service Wood Stork Recovery Plan

August 14, 2002

Colonel James G. May, District Engineer
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Re: **White Springs Agricultural Chemicals, Inc. (d/b/a PCS Phosphate - White Springs)**
Supplemental Comments on the Draft Supplemental Environmental Impact Statement (DSEIS)
and the Proposed Modification of Permit Application No. 198404652 (IP-RHL)

Dear Colonel James G. May:

On July 15 and 16, 2002, I forwarded formal written comments to your office regarding the referenced **Draft Supplemental Environmental Impact Statement (DSEIS)** and **Proposed Modification of the existing permit, to expand phosphate mining in Suwannee River wetlands and surrounding uplands at the White Springs site (Permit Application No. 198404652) for the life of the mine (47 years).** Those comments were forwarded electronically, on behalf of **Floridians for Environmental Accountability (FEAR), Wetlands Alert, Inc. (Wetlands Alert),** and myself. I also forwarded hard copies of exhibits that could not be forwarded electronically.

Today, I am providing supplemental formal comments (electronically) regarding the DSEIS and proposed permit modification referenced above, which are linked inextricably. These comments again are being forwarded on behalf of FEAR, Wetlands Alert, and myself. Additionally, I have been requested to submit comments on behalf of Suwannee/St. Johns Sierra. Accompanying my supplemental comments are additional exhibits. These additional exhibits have been forwarded either via Express Mail (EU531814975US) or hand-delivery, and have been added to the list of Exhibits in my previous "EXHIBIT 2" (in total bold), and renamed "**Supplemental EXHIBIT 2**". A copy of that "**Supplemental EXHIBIT 2**" also is being forwarded electronically, to be included in the record with my formal comments. Also, for your convenience and for the record, I have forwarded signed copies of my previous electronic comment letters referenced above. The first page of my letter dated July 15, 2002, contained typographical errors, which were corrected in the signed copies forwarded with the supplemental exhibits (via Express Mail).

As indicated previously, my comments are not meant to be exhaustive, but should be sufficient to illustrate the gross inadequacies of both the DSEIS and the referenced permit application, with respect to the Federal laws and regulations that govern these proposed actions.

SUPPLEMENTAL JOINT COMMENTS ON DSEIS/MODIFICATION TO PERMIT #198404652 (IP-RHL)

1. The DSEIS fails to address the extensive, significant and cumulative adverse groundwater impacts (including irreversible impacts) that are occurring at the White Springs mining site and would increase exponentially if the proposed modification was authorized. Based on records from the Suwannee River Water Management District, the existing mining operation is permitted to withdraw more than 50% of all of the ground water that is permitted by the District for withdrawal for other industrial, agricultural, and municipal uses combined in all of the counties in their District. The extensive pits (both permanent and those that may be filled in part or in full following mining) represent additional, long-term/permanent, irreversible adverse impacts to ground water and surface water. **These adverse impacts were not addressed in the DSEIS.**
2. One example of adverse impacts associated with the long-term/permanent, irreversible alterations of ground water and surface water referenced above is the premature decline and death of both wetland and upland trees, including trees that provide critical nesting habitat for federally-endangered wood storks. Please note that the DSEIS claims that there were no endangered species in the project area, but failed to consider the habitat for those species and the adverse impacts on that habitat from the existing and proposed mining activities. Significant declines in wood stork populations in "preserved" wetlands, such as those of the Corkscrew Swamp Sanctuary, due to the adverse impacts of mining activities in surrounding areas have been documented. This represents one factor in the loss of **natural habitat for wildlife**, including species such as the Florida black bear. This loss of habitat would extend far beyond the surface footprint of the proposed mine expansion, and would coincide with the subsurface footprint (groundwater impact zone) of the proposed mine expansion. Refer to **EXHIBITS 8, 9, and 10** for more detailed information regarding impacts from groundwater perturbations. **These adverse impacts were not addressed in the DSEIS.**
3. Trees also represent significant carbon sinks. **Massive forest decline and tree death** in that extensive area of north Florida due to the direct, indirect, and cumulative adverse impacts of the proposed mine expansion is proposed, as illustrated in the photographs of trees provided previously in **EXHIBIT 12**. This significant and irreversible loss is tantamount to the extensive deforestation in developing countries that is contributing to global degradation of air quality and global warming. **This adverse impact was not addressed in the DSEIS.**
4. The groundwater impacts associated with the existing and proposed mining activities have contributed to, and will continue to contribute to catastrophic and destructive wildfires in areas that include the Okefenokee Swamp and Okefenokee National Wildlife Refuge. Wildfires that have been burning in that Refuge for the past months have cost the federal taxpayers more than \$5 million dollars. The Press Release dated July 16, 2002, from Governor Bush (**EXHIBIT 17**) indicates that Floridians no longer are willing to tolerate the extensive environmental and economic burden of destructive dredging projects promoted by the COE. **The DSEIS did not address the catastrophic damage that results from those wildfires, nor the economic burden of those wildfires on the federal tax payers.**
5. The "Project Evaluation Area" (DF Figure 1.2.-1) and "Memorandum of Understanding Map" (DF Figure 1.3.5.-1), included as pages 2 and 3 of 13, respectively, in the Public Notice, depict areas delineated as **"Preservation from Mining"**. Those areas have not been and **cannot be "preserved"**. In reality, the adverse impacts of the existing mine activities already have set into motion a chain of events that is leading to the destruction of those areas designated as **"Preservation from Mining"**. The direct, indirect, and cumulative impacts of the proposed mining activities would result in the permanent, irreversible destruction of those areas designated for **"preservation"**. Further problems are associated with entities which are designated to **"manage"** such preserved areas (e.g., The Nature Conservancy, the Water Management District), but which cause additional damage to the **"preserved areas by generating additional groundwater impacts for which public comment is not sought. Those adverse impacts were**

not addressed in the DSEIS.

6. The "Project Evaluation Area" and "Memorandum of Understanding Map" referenced in the paragraph above also delineate the "Project Boundary". As indicated above, the adverse impacts associated with subsurface footprint of the existing mining operation extends beyond the delineated "Project Boundary". The direct, indirect, and cumulative impacts from the proposed permit modification for the "life of the mine" activities would exacerbate and expand the area of impact even further beyond the "Project Boundary" shown in those referenced figures, including onto extensive privately-owned and public land. This adverse impact was not addressed in the DSEIS.

7. Based on the inadequacies described above, the "Project Evaluation Area" depicted in DF Figure 1.2.-1, and utilized by the DSEIS, is not representative of the area that should have been evaluated for the DSEIS and proposed permit modification. Likewise, extensive areas have been "disturbed" by the existing mining operation and would be "disturbed" by the proposed mining operation beyond the area depicted as "Currently Permitted or Disturbed", in DF Figure 1.2.-1. Therefore, the areas addressed by the DSEIS are inadequate.

8. The "Memorandum of Understanding Map" referenced above also delineates "FDEP Jurisdiction" and the DSEIS references "jurisdictional" and "isolated" wetlands. As I indicated previously, all of the wetlands within the area considered to be the "Project Boundary" are within the COE's jurisdiction, not just the approximate 2,000 acres addressed in the DSEIS. Waters of the United States (including "jurisdictional wetlands") include wetlands adjacent to waters (such as navigable waters and their tributaries). "Adjacent" is defined as "bordering, contiguous, or neighboring." [33 CFR Section 328.3(d)] Additionally, all of the wetlands are within reasonable proximity to other waters, such that those wetlands are part of the aquatic system of the Suwannee River. Since the DSEIS failed to consider all of the wetlands within the designated (insufficiently small) "Project Boundary" as being within the COE's jurisdiction, the DSEIS is grossly inadequate.

9. The DSEIS also is deficient with respect to the analysis of alternatives. It failed to analyze a "non-jurisdictional waters" alternative or even to assess whether the proposed activity was water-dependent. Clearly, the mere fact that uplands are being mined is sufficient proof the mining is not "water-dependent".

10. The DSEIS stated that mining phosphate rock provided the only source for phosphate (e.g., for such uses as phosphorus in fertilizers). Refer to the peer-reviewed publication enclosed as new EXHIBIT 5c. That publication describes how 75% of phosphorus can be removed from swine manure solids by relatively simple and inexpensive techniques. Phosphorus also can be extracted from wastewater, sludge, dairy waste (manure), and chicken waste (manure). Those sources of phosphorus are available within the Suwannee River watershed, without the destruction of any Waters of the United States. In fact, many of those sources currently are factors in water quality degradation in the Suwannee River watershed. The use of those materials as a source of phosphorus would improve the water quality of the Suwannee River watershed and coastal waters. This alternative was not considered in the DSEIS.

11. Another study, too recent for publication, revealed that approximately 13% of Total P can be recovered from food waste and 4% can be recovered from biosolids (municipal wastewater sludge) using large-scale composting (K. C. Das, personal communication). That study indicated that in 1990, only 8% (an estimated 761,000 Mg/yr) of food wastes were diverted from landfills and composted. Although food wastes and biosolids are readily available in north Florida for large-scale composting as a source of the nutrient proposed to be obtained via mining under the proposed permit application, the DSEIS failed to consider or analyze that alternative.

12. Soil amendments for horticultural, landscaping, and agricultural use (that would include both phosphorus and nitrogen) without dredging wetlands and irreversible adverse impacts to Waters of the

United States also can be obtained by composting by-products from bleached kraft pulping processes, as described in the peer-reviewed publication enclosed as new EXHIBIT 5d. North Florida has many such pulp mills that could be used to generate the referenced nutrients that the proposed mining operation purportedly must provide. The DSEIS failed to consider or analyze that alternative.

13. The alternatives described above represent some of many functional alternatives which are economical, readily-available, and do not result in destruction of wetlands and other Waters of the United States. In fact, the use of any of the alternatives described above would result in a bona fide improvement in water quality for Waters of the United States. These functional alternatives also would provide jobs in the area that were long-term and sustainable, not just temporary (e.g., "life-of-the-mine") jobs.

14. The DSEIS addressed "aesthetics", suggesting that phosphate mine sites are aesthetic. Refer to the photographs I took in the area surrounding and including the existing White Springs mine site, and sites with similar groundwater impacts, including those photographs of premature decline and death of trees (EXHIBIT 12). Also refer to the additional photographs that I took showing the mountain of dredged aquifer matrix at other phosphate mines in Florida (EXHIBIT 12m; Sheet 1, upper and lower, and Sheet 2, upper). These mountains of mined aquifer matrix can range from two to three stories in height, as noted by comparison with the buildings and power poles in the photographs. Certainly no serious argument can be made that those mountains of mined aquifer matrix can be considered "aesthetic". By comparison, the mountain of composted waste/by-products shown in EXHIBIT 12m (Sheet 2, lower) represents a large-scale reduction in other destructive practices (e.g., landfills), ultimately resulting in a more aesthetic (less disturbed) natural landscape.

15. Geographic alternatives also are available, but were not considered in the DSEIS. An example of a practicable geographic alternative is importing the ore from an area that does not involve the discharge of dredged and fill material in Waters of the United States.

16. The on-site "no wetland" mining alternative considered in the DSEIS (not a true geographic or functional alternative) appeared to consider only 2,841 acres of upland mining, so that it only provided enough material to be mined for three years. In contrast, the other "alternatives" include between 10,000 and 13,800 acres of uplands to be mined. No alternative in the DSEIS included only mining in uplands.

17. The DSEIS failed to evaluate the adverse cumulative impacts of the proposed mine (e.g., the proposed creation of an additional 6,000 acres of pits - erroneously referenced as "lakes" approximately 70 to 90 feet deep, and admitted-proposed destruction of approximately 7,000 acres of wetlands) with respect to the previously permitted mining activities at the White Springs site, as well as with respect to other PCS Phosphate mining activities in the United States. An example of the latter is the reported 1,268 acres of wetlands in Beaufort County, North Carolina that the COE recently permitted for destruction (No. 02cv0053). For example, page 46 of the DSEIS references monitoring of the surficial aquifer drawdown with mining, yet that "monitoring" is incapable of addressing the impact on wetland hydroperiod within and beyond the designated "Project Boundary" because sufficient pre-mining and post-mining data were not collected within those wetlands. On the same page of the DSEIS it is noted that dewatering of the sites for mining has much more of an effect on the water table when the rainfall is less, yet there was no attempt to address the direct, indirect, and cumulative adverse environmental impacts of that dewatering.

18. The DSEIS also failed to evaluate the adverse cumulative impacts of the proposed mine with respect to the previously permitted mining activities in Florida by other mining companies. Examples include the thousands of acres of wetlands recently permitted for destruction by the COE in Miami/Dade County associated with the mining of approximately 22,000 acres in the Florida Everglades - another area supporting the federally-endangered wood storks (refer to my comment letters in EXHIBIT 4).

19. Pages 26 and 27 of the DSEIS infer that since the proposed permit modification would not direct any new direct or indirect discharges to the Suwannee River - an Outstanding Florida Water (OFW) - that no water quality evaluation is necessary. That train of thought, however, fails to consider cumulative impacts of continued discharges on water quality or to consider the direct, indirect, and cumulative impacts of altered hydrology and hydroperiods on water quality of the Suwannee River and other waters of the United States (e.g., the 7,000 acres of wetlands reported to occur within the designated "Project Boundary"). For example, groundwater alterations that would result from the proposed mining expansion will cause induced recharge from the wetlands, Suwannee River, Okefenokee Swamp, and associated tributaries - White Springs has ceased to flow due to activities from the existing mine. Impacts to water quality are implicit in the induced recharge from those surfacewater systems. Altering the hydrology and hydroperiod of waters of the United States (e.g., reducing flow in the Suwannee River and its springs) also will result in changes in water quality, simply by altering the volume of water historically in the natural systems. None of those impacts are addressed in the DSEIS.

20. Additional inadequacies of the DSEIS can be found on page 44, where implications are made that since fish and macroinvertebrates are not different above and below the mining operation, the mining activities have no adverse impacts on populations of those organisms. That assumption fails to take into account the extensive adverse impacts that have occurred upstream due to the existing mining activities (e.g., induced recharge) and would be exacerbated by the proposed expansion of those mining activities. Furthermore, the DSEIS fails to consider the adverse impacts to coastal organisms from changes in water quality, including those associated with reductions in water quantity and altered hydroperiod.

21. Despite the failure of the DSEIS to address water quality impacts, the Suwannee River Water Management District has conducted water quality studies. Since 1996, those studies consistently have rated Swift, Hunter, and Camp Branch (tributaries of the Suwannee River in the vicinity of the existing and proposed mining activities) as impaired waterbodies with "fair" quality. The District's reports further state that "any of the data outside normal parameters are due to mining influence." The proposed continuation of that "mining influence" represents another cumulative impact that was not considered in the DSEIS.

Please notify me by electronic mail if any of my comments or Exhibits were unclear regarding their relevancy to the proposed project. As indicated previously, please direct any responses to this letter to Dr. Kathy Cantwell, FEAR's Director of the Suwannee River Regional Chapter; Barbara Herrin, President of Wetlands Alert; and me, at the addresses provided below. By copy of this letter, I also am requesting that actual notice of any proposed action that the U. S. Army Corps intends to take regarding the DSEIS and proposed permit modification referenced above, also be forwarded to each of us. If the proposed modification is not denied, I am requesting that a series of Public Hearings be held throughout the State of Florida and Georgia regarding the impacts that would occur from this project. Thank you in advance.

Sincerely,

Sydney T. Bacchus, Ph. D.
Hydroecologist
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Enclosures:

See Supplemental EXHIBIT 2 for complete list of exhibits

cc:

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SUPPLEMENTAL EXHIBIT 2*

**LIST OF EXHIBITS FOR COMMENTS BY BACCHUS ON
PROPOSED MODIFICATION TO PERMIT #198404652 (IP-RHL)
AND**

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (DSEIS)

PERSONAL BACKGROUND AND EXPERIENCE, EDUCATION AND RESEARCH:

1. Curriculum Vitae [9 pages]

JOINT COMMENTS ON MODIFICATION TO PERMIT #198404652 (IP-RHL) AND DSEIS:

2. List of Exhibits [3 pages]
3. Comment letter dated 11/2/00 from Blackner to Hendrix/COE re: proposed permit modification [8 pages, submitted electronically]
4. Comment letters from Bacchus to COE re: mining in Florida [submitted electronically]
 - a. 4/6/01 Green Swamp
 - b. 4/18/01 Everglades Pits
 - c. 8/8/01 Carabelle
 - d. 8/9/01 CFI
5. Reasonable and Practicable Functional Alternatives That are Readily Available, but Were Not Addressed in the DSEIS:
 - a. Scientific Committee on Phosphates Scope Newsletter Special Edition No. 41: Phosphate Recovery - Where do we stand today? In preparation to the 2nd International Conference on Phosphorus Recovery for Recycling from sewage and animal wastes, Noordwijkerhout (near Amsterdam) Holland, 12-14th March 2001. European Chemical Industry Council.
 - b. Grattan, M. July/August 2002. Researchers at UGA's Bioconversion Center solve waste problems through compost. Georgia and Southeast Environmental News. [3 pages]
 - c. Worley, J. W. and K. C. Das. 2000. Swine manure solids separation and composting using alum. *Applied Engineering in Agriculture* 16(5):555-561.
 - d. Das, K. C., E. W. Tollner, and T. G. Tornabene. 2001. Composting by-products from a bleached kraft pulping process: Effect of type and amount of nitrogen amendments. *Compost and Science Utilization* 9(3):256-265.
6. Agenda for The Florida Association for Water Quality Control 24th Annual Conference, June 13-16, 2001. [3 pages]
7. Examples of peer-reviewed publications pertaining to water quality and adverse impacts of eutrophication to migratory birds, wading birds, and other wildlife in Florida:
 - a. Bledsoe, E. L. and E. J. Philips. 2000. Relationships between phytoplankton standing crop and physical, chemical, and biological gradients in the Suwannee River and Plume Region, U.S.A. *Estuaries* 23(4):458-473.
 - b. Lapointe, B. E., W. R. Matzie, and M. W. Clark. 1993. Phosphorus inputs and eutrophication on the Florida Reef Tract. pp. 106-112 in: R. Ginsburg (ed.) *Proceedings of the Colloquium on Global Aspects of Coral Reefs: Health, Hazards, and History*. University of Miami.
 - c. Bossart, G. D., D. G. Baden, R. Y. Ewing, B. Roberts, and S. D. Wright. 1998. Brevetoxicosis in manatees (*Trichechus manatus latirostris*) from the 1996 epizootic: gross, histologic, and immunohistochemical features. *Toxicologic Pathology* 26(2):276-282.
 - d. Frederick, P. C., S. M. McGehee, and M. G. Spalding. 1996. Prevalence of *Eustrongylidosis ignotus* in Mosquito fish (*Gambusia holbrooki*) in Florida: Historical and Regional Comparisons. *Journal of Wildlife Diseases* 32(3):552-555.
 - e. Spalding, M. G. 1990. Antemortem Diagnosis of *Eustrongylidosis* in Wading Birds

- (Ciconiiformes). *Colonial Waterbirds* 13(1):75-77.
- f. Spalding, M. G., G. T. Bancroft, and D. J. Forrester. 1993. The Epizootiology of *Eustrongylidosis* in Wading Birds (Ciconiiformes) in Florida. *Journal of Wildlife Diseases* 29(2):237-249.
8. "Synopsis of Florida's Hydroecology: The Intimate Connection Between Surface Waters and Ground Waters"
 - a. Bacchus, S. T. 2000b. Uncalculated impacts of unsustainable aquifer yield including evidence of subsurface interbasin flow. *Journal of American Water Resources Association* 36(3):457-481.
 - b. Illustrated Typical Cross-Section of the Floridan Aquifer System
 - c. Bacchus, S. T. 2000a. Predicting nearshore environmental impacts from onshore anthropogenic perturbations of ground water in the southeastern Coastal Plain, USA. pp. 609-614 in: *Interactive Hydrology: Proceedings of the 3rd International Hydrology and Water Resources Symposium of the Institution of Engineers, Australia, 20-23 November 2000 Perth, Western Australia.*
 - d. Illustration of Aquifer Impacts from Dredged Pits: Intact Aquifer Cube v Dredged Cube
 - e. Ecological Risk Ranking Scores for 33 Major Environmental Stressors by the USEPA Scientific Advisory Board (Figure 26.8 in: Bacchus, S. T. 2002. The 'Ostrich' Component of The Multiple Stressor Model: Undermining Florida)
 9. Graphic Excerpts from Peer-Reviewed Publications:
 - a. Cross-sections of depressional wetlands in Florida (Watson et al. 1990, Fig. 3)
 - b. Vertical hydraulic conductivity in karst depressions (Williams 1985, Fig. 5.16C)
 - c. Vertical fracture through "confining" layers of the Floridan aquifer system (Spechler and Phelps 1997, Fig. 3)
 - d. Fractures and faults in Florida's karst aquifer extending approximately 35 miles (Popenoe et al. 1984)
 - e. Depressional (pond-cypress) wetlands and relict sinkhole lakes aligned along fractures (Brook and Sun 1982, Figs. 10 and 18)
 10. Examples of peer-reviewed publications pertaining to altered hydroperiods and adverse impacts to natural resources:
 - a. Curtis, T. G. 1989. Estimating Unsteady Water Table Behavior Using Boundary Integral Approximations. pp. 298-310 In: J. E. Moore, A. A. Zaporozec, S. C. Csallany, and T. C. Varney (eds.). *Recent Advances in Ground-water Hydrology.* American Institute of Hydrology.
 - b. Patten, T. H. and J.-G. Klein, 1989. Sinkhole formation and its effect on Peace River hydrology. In: B. F. Beck (Editor) *Proceedings of the Third Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, St. Petersburg Beach, Florida, 2-4 October 1989.* A. A. Balkema Publishers, Old Post Road, Brookfield, Vermont. pp. 25-31.
 - c. Lewelling, B. R., A. B. Tihansky, and J. L. Kindinger. 1998. Assessment of the Hydraulic Connection Between Ground Water and the Peace River, West-Central Florida. *USGS Water-Resources Investigations Report 97-4211.* 96 pp.
 - d. Bacchus, S. T., 1997. Premature decline and death of trees associated with a man-made lake and groundwater withdrawals in Albany, Georgia. In: K. J. Hatcher (Editor) *Proceedings of the 1997 Georgia Water Resources Conference, held March 20-22, 1997, at The University of Georgia, Athens, Georgia.* pp. 280-286.
 - e. Bacchus, S. T., T. Hamazaki, K. O. Britton and B. L. Haines. 2000. Soluble sugar composition of pond-cypress: A potential hydroecological indicator of groundwater perturbations. *Journal of American Water Resources Association* 36(1):1-11.

11. Relevant Federal Documents
 - a. 4/6/95 EPA Memo from Bacchus to Wylie
 - b. 3/1/98 EPA Memo from Bacchus to Wylie
 - c. 3/00 Final Programmatic EIS, Rock Mining - Freshwater Lakebelt Plan, Miami-Dade County, Florida [1 page excerpt]
 - d. 3/22/02 Riparian Areas: Functions and Strategies for Management (NRC report excerpts)
 - e. 7/16/02 Press Release from Governor Bush supporting legislation to halt damage by COE
12. Photographs taken by Bacchus and supplemental background information:
 - a. 3 symptoms of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - b. 2 photographs of another symptom of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - c. 2 additional symptoms of premature decline from subsurface alteration of wetlands hydroperiod in Florida [1 sheet]
 - d. 2 photographs of an additional symptom of premature decline, and 1 photograph of newly-formed sinkholes, all due to subsurface alteration of surficial aquifer hydroperiod in Florida [1 sheet]
 - e. symptoms of premature decline from subsurface alteration of wetlands hydroperiod at Little Gator Creek [3 sheets]
 - f. symptoms of premature decline and subsurface alteration of wetlands hydroperiod from mineral mining at Starke [4 sheets]
 - g. symptoms of altered physical and chemical conditions of "stream" water and habitat due to due to phosphate mining at Dog Leg Branch [5 sheets]
 - h. faxes from the Florida Institute of Phosphate Research to Bacchus dated 7/20/98 and 7/21/98 with supplemental background information [6 pages]
 - i. symptom of premature decline due to subsurface alteration of surficial aquifer hydroperiod in Live Oak [1 sheet]
 - j. symptoms of premature decline from subsurface alteration of wetlands hydroperiod at White Springs [3 sheets]
 - k. canopy of normal cypress tree lacking any symptoms of premature decline on Suwannee River [1 sheet]
 - l. nonaesthetic mine-scapes permanently and irreversibly altering the rural watersheds and natural habitats throughout Florida [2 sheets]
 - m. mountains of dredged aquifer matrix vs. mountains of composted waste and by-products [2 sheets]

CUMULATIVE EFFECTS:

13. "What are Cumulative Impacts? Synopsis of the U. S. Council on Environmental Quality: 1997 Cumulative Effects Report"
14. "Considering Cumulative Effects Under The National Environmental Policy Act"
15. Season and Depth Requirements of Surface Water for Successful Breeding of Amphibians Associated with Depressional Wetlands in Florida [1 page Table]
16. Fish and Wildlife Service Wood Stork Recovery Plan
17. Suwannee River Water Quality Report by Suwannee River Water Management District

* Supplemental exhibits shown in total bold.

RESPONSES

September 26, 2002

Colonel James G. May, District Engineer
Attn: Richard Legere
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Re: EPA Comments on Draft Supplemental Environmental Impact Statement
PCS Phosphate – White Springs Response

Dear Colonel May:

Thank you for the opportunity to review and respond to the comments of the U.S. Environmental Protection Agency (EPA) on the Draft Supplemental Environmental Impact Statement (DSEIS) prepared in association with our application for a Section 404 permit to continue our phosphate mining operations in Hamilton County, Florida. We should note as a threshold matter that the issues raised in this letter were not raised by EPA or any other party in response to the scoping notice for this DSEIS (63 Federal Register 35916, July 1, 1998). This response is organized to follow the general comment headings in the EPA letter.

Wetland Issues

We look forward to a rapid resolution of any remaining federal jurisdictional issues. As we have previously noted, EPA did not identify any issues with jurisdiction in a timely manner. We are nevertheless moving forward with resolution. The DSEIS and the application package submitted to federal, state, and local agencies in November 2001 were developed in reliance upon the jurisdictional proposal made by the company in May 2001.

Threatened and Endangered Species

The U.S. Fish & Wildlife Service (FWS) has been represented in the current permitting process since its inception in 1997, and has adequately addressed all threatened and endangered species issues. The Corps has requested a §7 consultation with FWS. Based on a recent conversation with FWS personnel, we expect that consultation to be completed by the end of September with a finding of no adverse effect.

Cumulative Impacts

EPA is referred to the Supplemental Technical Background Document (STBD) for detailed analysis of the matters raised in this paragraph. Water quantity and water quality are addressed in detail in both the STBD and the original TBD (1985). In addition, the application for modification of the Conceptual Reclamation Plan includes surface water modeling that documents the absence of hydrologic impact on the Suwannee River. Copies of all that material have been provided to EPA.

The most important conclusion of the DSEIS, based on the TBD, STBD, and other studies referenced in the DSEIS, is that any impacts from the proposed activities are adequately mitigated, whichever alternative is selected. The only differences, therefore, are in the socio-economic impacts of the various alternatives. The discussion in the DSEIS is appropriate.

The supporting documentation also includes information apparently not considered by EPA describing the limitation of the impact of the mining operation to the upper portion of the surficial aquifer. The mining operation does not affect the confining layer beneath the phosphate zone or the deeper Floridan Aquifer.

Suggested Improvements

We should note again that the following issues were not raised by EPA or any other party in response to the scoping notice and process for this DSEIS. It would be our view that these issues are not properly before the Corps of Engineers for consideration.

We should also note that neither sand-clay mix nor phosphogypsum-clay blend techniques are used by PCS Phosphate – White Springs.

To the extent that EPA's authority in this area is related to underground sources of drinking water, it should be noted that there are no community water systems or non-transient non-community water systems utilizing the surficial aquifer or surface water as sources of supply in Hamilton County.

The concerns raised by EPA related to the Peace River basin have been thoroughly addressed by parties working in that area. It has been conclusively demonstrated that phosphate mining is responsible for less than 2 percent of the reported changes in stream flow in the Peace River. Furthermore, there is no relationship between conditions in the Peace River Basin and conditions in Hamilton County. Localized changes in surficial aquifer conductivity in the most upstream, flat-lying portion of drainage basins, which is where PCS's clay settling areas are located, would not adversely affect stream flows, and would clearly not influence the flow of the Suwannee River, because of both the vertical and horizontal separation of the mining operations from any subsurface hydrogeologic units that would be expected to contribute to stream flow. The operations are required to restore pre-mining surface water conditions under Florida reclamation rules, and the modeling done for this permit application describes how that is to be accomplished. Documentation relative to these matters is found in the STBD and other supporting materials previously provided to EPA.

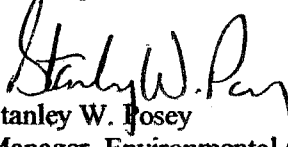
The groundwater monitoring program described in the DSEIS and supporting documentation is designed to provide the technical basis for addressing potential short-term impacts to nearby shallow (surficial aquifer) ponds, wells, and wetlands. The DSEIS and supporting documentation clearly demonstrate the recovery of surficial aquifer levels to pre-mining conditions after the mining operation and reclamation are complete. PCS does not employ the dewatering technique described in the letter. Surficial aquifer impact, monitoring, and mitigation were the primary subjects of the Ecosystem Management Advisory team meeting and presentations of March 12, 2002. The minutes from that meeting, other team meetings, and other records of the process are found on DEP's web site for this process at <http://www.dep.state.fl.us/northeast/admweb/pcsprogram/pcsmmin.htm>. The monitoring program will be implemented over the life of the operations as described in the documents.

Changes in Ground Water Storage

There is no evidence of the large-scale change in ground water storage that appears to be EPA's concern resulting from PCS's mining operations. Where this general concern has been raised in the context of activities in the Peace River basin, it has been adequately addressed, including extensive testimony accepted and relied upon by the Administrative Law Judge in the recent case upholding state approval of a phosphate mining operation's application for a wetlands mining permit. There is no reason to expect material change in surficial aquifer storage in land-and-lakes and tailings fill reclamation areas. Any such change in clay settling reclamation areas would be highly localized, and in PCS's case, would be in the upstream, flat portion of the various drainage basins, far removed from any areas of possible ground water contributions to streamflow. We should again note that PCS does not use the sand-clay mix reclamation technique. Documentation relative to these matters is found in the STBD and other supporting materials previously provided to EPA.

Thank you again for the opportunity to comment. Please let us know if we can provide further information.

Sincerely,


Stanley W. Posey
Manager, Environmental Affairs

c: Marie Burns, U.S. Army Corps of Engineers
Haynes Johnson, U. S. EPA
John Hamilton, U.S. EPA

STANLEY W. POSEY
MANAGER, ENVIRONMENTAL AFFAIRS

November 14, 2002

Mr. Richard Legere
Department of the Army
Jacksonville District Corps of Engineers
Gainesville Regulatory Office
101 NW 75th Street, Suite 3
Gainesville, Florida 32607-1609

Re: Response to Dr. Sydney Bacchus' Comments on PCS Phosphate's Draft Supplemental Environmental Impact Statement (DSEIS) and Proposed Modification of Permit Application No. 198404652 (IP-RHL)

Dear Mr. Legere:

We appreciate your providing Dr. Sydney Bacchus' comments on the Draft Supplemental Environmental Impact Statement (DSEIS) and the Proposed Modification of Permit Application No. 198404652 (IP-RHL). We have reviewed her letters (dated July 15th, July 16th and August 14th, 2002) and the supporting reference materials you provided. Much of the material is not relevant to the referenced documents, and few of the comments were specific enough to enable a response. We should note that many of the comments indicate unfamiliarity with the project history and the current process. We have attempted to organize the various comments and materials into groups for purposes of evaluation, and offer the following responses.

- Alternatives Analysis and Water Dependency

Comments on these issues generally fail to recognize that the current work is a continuation and supplement to work done in the early to mid-1980s. The permit application does not involve expansion of the scope or nature of the operations, and is within the original EIS project boundary. The issues of water dependency for this project and wetland avoidance alternatives were thoroughly addressed in the initial Clean Water Act Section 404 wetland permitting effort completed in 1987. The initial effort was begun in 1980 with the U.S. Army Corps of Engineers (ACOE) assertion of discretionary jurisdiction over wetlands within the HCM boundaries. The proposed mining area was extensively evaluated over a seven-year period. The conclusion of this comprehensive analysis was an ACOE permit and Memorandum of Understanding (MOU) in 1987 between the applicant, the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Regulation (FDER) pertaining to the entire project area. The MOU contains agreements for the applicant to forego mining in wetland considered "environmentally sensitive" and worthy of protection. Approximately 19,000 acres were included in the wetlands and buffers to be preserved from mining, including approximately 12,000 acres (12% of the area) within the project boundary. The applicant's mining rights were legally transferred to the Suwannee River Water Management District (SRWMD) to insure no future mining could be conducted in these areas. The terms of the MOU were documented in the ACOE "Record of Decision" CESAJ-FD-P for permit # 84B-4652, and the substantive terms of the MOU were incorporated into the permit conditions. The applicant's operations and the process for the current permit application have been conducted in reliance upon these determinations.

Alternatives addressed in the DSEIS were developed through the scoping process, which resulted in a Plan of Study (POS) for the SEIS process. This scope was public noticed and published in the Federal Register (vol. 63, # 126/Wed, July 1, 1998, p. 35916). The POS was approved by all the regulatory authorities and the EMAG after receiving public comment.

- Groundwater

The issues raised here seem to be similar to those raised by Dr. Bacchus and others in recent state administrative proceedings on permits in central Florida. These issues were addressed in the context of the administrative hearing and were not found relevant or persuasive by the administrative law judge.

Potential aquifer impacts have been extensively addressed during the EIS and permitting efforts. Evaluations of long-term trends indicate that water levels have remained relatively stable in the Floridan Aquifer and a close correlation exists between average precipitation rates and Floridan Aquifer water levels (STBD, Section 3.1.4.3.2, Page 3-63). Section 3.1.1.3.3 of the STBD (2000) provides a detailed description of the hydrogeology of the project area. Mining activities are confined entirely to the strata that comprise the surficial aquifer, and do not result in impact to the Floridan Aquifer.

Potential temporary impacts to the surficial aquifer were addressed in the Response to PCS EMAG Consolidated Request for Additional Information (May 10, 2002, Appendix 12) and the Ecosystem Management Advisory Group (EMAG) meeting of March 12, 2002 provided in Section R (Response to PCS EMAG Second Request for Additional Information September 9, 2002). Section R includes minutes of the EMAG meetings held since the submittal of the November 15, 2001, application documents. These minutes may also be found on the FDEP website for this project at www.dep.state.fl.us/northeast/adminweb/pcsprogram/pcsmin.

- Deforestation

Dr. Bacchus is apparently not familiar with PCS's current and past reclamation practices at the Hamilton County Mine (HCM). PCS has planted thousands of acres of wetland and upland trees to replace those harvested or removed for mining operations.

Revegetation at the HCM will be completed to comply with appropriate FDEP rules (62C-16 F.A.C.) which require the mined lands to be returned to useful economic uses. Clearing and mining are gradual processes, and reclamation follows, with re-establishment of vegetative cover and invasion and colonization of flora from adjacent areas. Upland and wetland revegetation is discussed in detail in Sections 3.1 and 4.2 of the DSEIS. The analogy Dr. Bacchus attempts to draw to deforestation in developing countries to the mine expansion is unsupportable, given that land in developing countries is converted to pasture or fields. Reclamation of mined lands includes restoration of pre-mining vegetation types including forested wetlands and upland forests, both pine and mixed hardwoods.

- Cumulative Impacts

All of the impacts discussed in the DSEIS and STBD (2000) were evaluated in the context of what has already been mined or disturbed and the ongoing mining and reclamation activities. PCS is now reclaiming land as fast or faster than it is mined on a net acre basis. Since 1991 PCS has reclaimed approximately 1,000 more acres than it has mined. Please see Section 4.25 of the DSEIS for more details on environmental and economic and human resource impacts.

- Extent of Federal Jurisdiction

Federal jurisdiction is determined by wetland boundary determinations and application of criteria consistent with the decision of the U.S. Supreme Court in January 2001 (SWANCC) which restricted assertion of federal jurisdiction over isolated wetlands. Wetland boundaries were developed by a technical working group of the EMAG composed of state, federal and applicant representatives. Federal jurisdiction within the project boundary has been addressed by the EPA and ACOE through extensive field work and site verification.

- Surface Water Quality

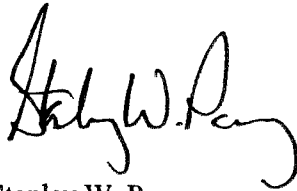
The HCM has been in operation for almost 40 years. The Suwannee River was designated an Outstanding Florida Water (OFW) in the early 1980's after nearly 15 years of mining at the HCM. PCS has demonstrated through all of the studies produced in support of this application process that water quality the Suwannee River will not be degraded. Surface water discharges at the mine are regulated by the permit. Conveyance of waters at the mine and off-site discharges are managed in strict accordance with permit requirements. Water quality data are submitted to the FDEP monthly for the NPDES / IW permits, and consistently demonstrate no degradation of surface water quality.

- Wildlife and Endangered Species

A thorough assessment has been made of potential federal listed species that may occur in the application area. Potential occurrences were addressed in Section 3.3 of the DSEIS. A Section 7 consultation has been initiated by the ACOE with the U.S. Fish and Wildlife Service (USFWS) (letters November 30, 2001 and July 9, 2002). The mitigation for mining impacts will actually increase habitat diversity and benefit wildlife. For example, bald eagles now nest in the area due to increased feeding areas provided by reclaimed lakes. Wood storks are commonly seen in the mining and reclaimed area where none were present prior to mining. USFWS staff has indicated that they are in agreement with the DSEIS assessments and intend to notify the ACOE that no formal Section 7 consultation will be required as no adverse impacts on threatened or endangered species are anticipated.

Please let us know if you need further information.

Sincerely,



Stanley W. Posey

c: Joseph Bakker, DEP
Marie Burns, ACOE
Ernie Frey, DEP/NED
Lewis Vaughn, Hamilton County